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26. *On the Treatment of Varix of the Inferior Extremities. 1. By Pins. 2. By Caustic Potass. 3. By the Combination of these means.* By M. BONNET, First Surgeon of the Hôtel Dieu of Lyon.—IN 1834, I commenced, says M. Bonnet, to study the subject of the radical cure of varices. In the following year, I employed pins in sixteen cases, in which the veins were in relief beneath the skin, and caustic potass in two cases of females, in which the dilated veins were lost in a large quantity of fat. The last two were cured, as well as all those who were treated with pins, and who were in such a condition as to render a radical cure certain. Both methods appeared to me equally useful. But as hemorrhage had occurred through the eschars at the time that the caustic had opened the veins, and as no serious accident had followed the use of pins, I came to the conclusion that the operation by pins was to be preferred. But I determined to watch the progress of these cases; and the consequence was, that I was disappointed in the effect of the pins. All the patients whom I saw again, after having remained well during a time varying from one to six months, were reaffected with varix, with as much intensity as before the operation, and this not only in the secondary divisions of the veins, but in the trunk of the saphena, on which the larger number of pins had been applied, and where it appeared that the obliteration would be permanent. In two cases treated by caustic potass, there was no return of the disease: one of these was seen fourteen months after the treatment, the other several years afterwards. From these facts I was led to infer, that the pins produced but a temporary obliteration; but that caustic potass determined a permanent closure, its use, however, being attended with risk of hemorrhage. I considered, therefore, that if I placed pins at intervals upon the saphena, and cauterized the vein between them, I should obtain a temporary obliteration by the pins, such as would prevent hemorrhage, and a permanent obliteration by caustic, such as would effect a cure. I employed this treatment on nine patients, in 1837, but these cases I never saw again. But, in 1838, I treated a man in whom the ulcerated varicose veins gave rise to abundant hemorrhage. I had lost confidence in pins, and found the combination of pins and caustic too complex. I had, therefore, recourse to caustic alone, believing that bleeding might be controlled by compression and position. The result of the practice, in this case, having justified my expectations, I resumed a practice, which I immediately employed on a new series of twelve cases, the course of which more and more confirmed me in the idea, that the treatment of varices by caustic alone is, of all the methods which I employed, the most simple in its application, the least uncertain in its effects, and that which secures the most complete and the most permanent cure.

Before further considering the question of treatment, which is the main object of this paper, I would notice a fact in morbid anatomy relative to varices, and a symptom from which their importance and the effects of treatment upon them may be inferred. I speak of those tumours which stand in the same relation to veins that spontaneous aneurisms do to arteries, and of the undulation which may be communicated to the blood in varicose veins, in a contrary direction to that which happens when the valves are entire, and the blood takes its normal course.

Varicose Tumours analogous to Spontaneous Aneurisms.—I removed one of these tumours from the course of the internal saphena vein; it contained a quantity of liquid blood, with soft and blackish clots; its fibrous walls were perfectly smooth on their internal surface, and its cavity communicated with that of the vein by an opening, three or four lines in diameter, which surrounded the small portion of the vein which I had detached. This tumour was like an aneurism; its walls were continuous with those of the vessel on the side of which it was situated, and the cavities of the one and of the other communicated by a narrow aperture. I have since met with this affection in two instances, and each time on the crural portion of the internal saphena vein. On percussing one of these tumours, the blood was made to flow backwards in the dilated vessel, and on placing the hand upon the other, a distinct pulsation was felt, which pulsation was also visible. This reflux, this pulsation, seems to me to be the distinctive character of the tumours; because it shows that the fluid contained in them communicates freely with that in the veins. This form of varix has been very little mentioned by authors. The two cases just mentioned were treated simply by passing a pin through the bloody mass: it was secured by the twisted suture, and not removed, in either case, for eight days. The blood began to coagulate on the second day; on the eighth, the swelling had become hard, and in about a month it was very hard, and of the size of a small nut. This I regard as a successful issue of the treatment of these tumours by means of pins. The undulation of the blood caused by percussion of varicose veins should be very carefully attended to, both as a mean of judging of the difficulty which may attend the radical cure of varix, and especially to ascertain whether or no, when pins have been employed, they have been employed properly; for if the pins properly compress the opposite sides of a vein, the undulation of blood stops at the place so compressed. This sign should also be attended to at the conclusion of the treatment, as a mean of judging if the treatment requires to be renewed.

Treatment of Varices by Pins alone.—Velpeau, Davat, Jobert, who have written on the treatment of varices by pins, have not specified the cases in which they necessarily fail, and in such cases as failure does not happen, to what extent the cure is permanent; nor have they insisted on the principles on which this treatment is founded. These defects it is my intention to supply.

In the treatment of Varices, it is necessary to obliterate the veins in several points separated from each other by short intervals.—The necessity of this is admitted, depending, as it does, on the numerous anastomoses of the venous trunks. It is easy to find, in various works, instances of continuance or recurrence of varix, after the obliteration of a vein in one place alone, whether this obliteration was spontaneous, or artificially effected. On the other hand, in addition to written evidence of an opposite character, all the observations which I have made on the obliteration of veins, either by pins or by caustic potass, have but confirmed me in the opinion, that veins should be obliterated in several points. I have always observed, that the coagulation of the blood, and the contraction of the vein, took place only in the vicinity of the obliterated points; that the divisions of the veins distant from those which the operation had rendered almost impermeable to blood, remained almost as dilated as before the operation. I consequently have been in the habit of obliterating at as many points as possible, placing from four to ten pins on the same individual, some on the course of the internal saphena, from three to four inches apart, others at the point of junction, or upon the course of the principal divisions connected with it.

Methods of placing the Pins.—There are three principal methods. That of M. Davat consists in plunging the pin upon the middle part of the vein which is to be obliterated, passing it through from the superficial to the deep part, and again in a contrary direction. When the point of the needle protrudes, it is fixed by means of a thread, twisted as in the twisted suture, and it is allowed to remain until the parietes of the vein, in contact with one another at the divided part, become inflamed and adherent. This plan is easily enough effected by means of common pins, when the part to be transfixed takes an oblique direction in relation to the axis of the limb. In this case, after having transfixed the vein, the head of the pin being depressed, its point is passed for two or three times behind the vessel, which is again transfixed with ease, from within outwards. But when the vein runs parallel to the limb, as is commonly the case in the thigh, it is difficult, without giving an oblique direction to the pin, to pass it properly, so that after having transfixed it inwards, the pin may not enter it in coming outwards, but may pass behind it. The method of M. Velpeau consists in passing a pin transversely beneath a vein, without wounding its parietes, securing it afterwards by means of the twisted suture. M. Fricke simply transfixes the vein with a pin, and allows it to act as a seton in the production of adhesive inflammation. The method of M. Davat appears the most efficient of these three: it ensures inflammation, compression, and the contact of the parietes of the vein, in those parts which the pins have divided. M. Davat considers that it is very important to slightly divide the membranes of the vein, before putting them into contact. He thinks M. Velpeau's method insufficient, that it simply produces coagulation which may not be durable. He dissected the jugular vein of three dogs, which he had operated on in the manner described by M. Velpeau. In one case the pins were withdrawn on the eleventh day; in the other two cases, on the ninth. In the first case, the vein was thickened for the extent of an inch, a fibrous cylinder occupying its cavity, which was contracted but not obliterated. In the other two cases, the course of the blood was re-established, the veins being simply thickened. Other experiments of M. Davat show that obliteration depends upon adhesive inflammation, that the cicatrices are durable, and not dissipated with the other effects of the inflammation.

Period during which I have left the Pins in place.—I have never waited for the establishment of suppuration before removing the pins. When the red tumefaction and pain around the pin commenced, I cut the thread, and as soon as the swelling and redness were very marked, and the pain such as to disturb sleep, I removed the pin. The time required for the production of these symptoms varied from three to fifteen days. In one case only, having neglected to take away a pin which caused great pain, and which had produced, on the fourth day, a swelling, the surface of which was somewhat larger than a sixpence, an active inflammation occurred in the upper half of the leg. This was of a phlegmonous character, requiring very active means to prevent suppuration. This, and other cases, induced me to remove the pins before suppurative inflammation took place.

Result obtained by treatment of Varices by Pins alone.—These cases may be thus classed: 1. Varices without ulceration of the vein, without œdema, the vessels being easily visible, and capable also of being felt throughout their whole course. 2. Varices very much folded on themselves, resembling, in this respect, the intestines. 3. Varices accompanied by œdema, and losing themselves in a quantity of fat. Eleven patients belonged to the first class; two of these were more than sixty-three years of age, and were debilitated. The cure was not even momentary, the blood did not coagulate in the interspaces of the pins, and before they left the hospital, the obliteration, the existence of which was known by the stoppage of the undulation, even after the removal of the pins, was completely destroyed. These facts are not astonishing. In advanced life, the blood is indisposed to coagulate, adhesions are indisposed to form; and no attempt should be made to cure varices after the age of sixty years. The other nine were, with one exception, under fifty-four years of age: they left the hospital quite cured; the blood was coagulated in the whole course of the varicose vessels; these were diminished in size, and a very long walk did not cause swelling of the veins. But, of these nine, I saw five again. In two of these, the veins began to enlarge and to become permeable, as soon as the patients resumed their occupations; in two others, two or three months afterwards, and in the fifth, six months after his having left the hospital. One or two months more were required in each case, before the dilatation was as much as before the operation. The patients of the second class were almost completely cured: some few venous branches only swelled whilst walking. In one of these, fifteen months afterwards, the internal saphena and its branches had become as large as before the use of the pins. In the two other cases, in which the veins were very large, lost in a great quantity of fat, and spread in large number over the whole leg and instep, although in one of these I applied twelve pins, and in the other fourteen, which were not withdrawn until from the eleventh to the fifteenth day, only a momentary benefit was obtained. One of these patients was sixty, and the other forty-eight years of age. The same failure occurred in two patients, whose varices were imbedded in fat, and were attended with œdema. Of the twelve patients regarded as cured on leaving the hospital, the six whom I saw afterwards suffered a relapse, after a longer or shorter period. There were among these some whose veins were most acutely inflamed, and where the cure appeared to be complete.

It is an important question, *How do veins once obliterated become again permeable to blood?*—Phlebitis obliterates veins: 1. By infiltration of serum into their surrounding cellular tissue, and into the substance and on the surface of their proper tunics. 2. By the secretion of organizable matter in the same parts. 3. By coagulation of blood. It is evident that a diminution of inflammation will account for the re-establishment of the current of blood. But M. Davat asserts, that by his method an inflammation is excited, which gives rise to adhesion of the opposed venous surfaces, by a fibrous tissue, and that this adhesion is indestructible, as is shown by experiments on dogs. But it is not certain that the adhesion which takes place in the veins of dogs will also occur in varicose veins. These no longer possess their normal texture; they are changed into a fibrous tissue, having but little disposition to secrete organizable matter, and consequently to contract adhesions; the inflammatory phenomena occur rather in the healthy cellular tissue around than in the substance of the veins themselves. These considerations explain clearly the want of adhesion, and the merely temporary obliterations which, at first sight, appear somewhat unaccountable.

Varices treated with Caustic Potass.—Caustic has been long employed in the treatment of varicose veins; but the principles of its correct application have not been laid down. The following are the rules which have guided me in the treatment of varix by caustic potass:

1. *It is necessary to apply several morsels of caustic potass on the course of the dilated vein, and at a distance of three or four inches from each other.* This is a repetition of the principle already laid down in speaking of the treatment by means of pins.

2. *The caustic potass should only be applied to the veins at such points as these correspond to the muscles.* Other situations than these are unfavourable to cicatrization, and if cicatrization takes place, the ulcers are readily renewed. The situations which I prefer, are,—1, for the thigh, at the height at which cauteries are commonly applied, but a little backward, in consequence of the situation of the vein; 2, for the leg, at the height commonly chosen for cauterization; 3, the middle of the thigh, or the middle of the leg, if three applications should be necessary. In each case, it is supposed that the vena saphena is alone affected.

3. *It is necessary to apply the caustic at least twice, in order to reach the vein.* This supposes, that in order to obliterate the veins, it is necessary to open them by the caustic. All the cases which I have observed, have convinced me that this is a fact. The undulation of blood has never ceased after the first application, which has only implicated the skin and subjacent cellular tissue. The conversion into a hard and impermeable cord has never happened, until after a second application. Would it be better to destroy sufficient at once, or by making two successive applications, to make the second application in the centre of the eschar produced by the first? The reply is not doubtful, if it be considered that it is sufficient to open the vein, and to destroy it to the extent of a few lines, and that any further destruction is useless. A single piece of caustic, which would reach the vein, would make a large eschar of the integument; but with a small piece, twice applied, the part may be hollowed out without extensive destruction of the surface. We should wait three or four days, before applying the second piece of caustic. The plan then is, to make a crucial incision through the eschar, and to insert the caustic into this incision. After the second application, the blood escapes. It is possible, that even a third application may be required to open the vein, but this has always been sufficient. In this way I have applied the caustic, both when I employed it alone, and when I conjoined with it the use of pins. I have employed this treatment in fourteen cases, with different results as it regards the cure of the disease, but always without serious effects.

We pass over M. Bonnet's observations on the cases in which he employed both caustic and pins, because he gives the preference to the treatment by the former alone.

Caustic potass applied over veins does not expose the individual to phlebitis, i. e. to that kind of phlebitis which extends from the part operated on towards the trunk. Of course a certain amount of local inflammation is essential to the cure. In advancing the above proposition, I am supported by the fourteen cases in which the potass was employed alone, and by six others where it was combined with pins. Here are twenty cases, in none of which was the inflammation disposed to pass along the veins, although three or four applications of caustic were made in their course, most of which opened their cavities. The patients were simply confined to bed, taking their usual diet at the same time. General facts are also in support of the opinion which I derive from my experience. These facts show that cauterization limits all inflammations which are disposed to extend.

The application of caustic potass is followed by a circumscribed inflammation, and by ulcerations which are slow to cicatrize.—In the cases where several pieces of caustic are applied very near each other, the inflammations which surround each eschar run together, and the consequence is a true phlegmon.

The application of caustic potass exposes to hemorrhage; but this hemorrhage may be easily avoided, if the patient keeps his bed, and if a slight compression is exercised around the limb.—It has been already said, that it is necessary to apply the caustic until a slight escape of blood shows that the vein has been opened. There may be an actual hemorrhage instead. How long should a patient remain in bed, to render him safe from all chance of hemorrhage? This can not be fixed by days, but must depend on the condition of parts. When the vein is opened, and this is known by the escape of a few drops of blood, the blood coagulates beneath and above the perforated part; the vein becomes hard, and percussion communicates no undulation to the blood. These signs, which demonstrate the obliteration of the vein, show that there is no further chance of hemorrhage. Four or five days commonly suffice for the accomplishment of these phenomena. In order to second the effects of rest, a bandage should be applied around the limb, immediately after the application of the second piece of potass. The neglect of this was, in one case, followed by hemorrhage, one hour after the application of the second caustic. But a roller immediately stopped the bleeding. No other patients treated with caustic potass, who kept their bed, and to whose limbs a roller was applied, suffered from any hemorrhage worthy of the name; the effusion of a few drops of blood alone announced that the vein was opened.

In the varices which are limited to the internal saphena and its divisions, and which affect persons within sixty years of age, caustic potass produces a complete and permanent cure.—The fact of the completeness of the cure rests on fourteen cases. Those which are related, leave no doubt of the superiority of cauterization compared with the employment of pins, as a mean of effecting the obliteration of veins. In one case only was there not a complete interruption to the current of blood in the vein.

The cure of varices by caustic potass, or by any other means, should not be attempted when the internal and external saphena veins are dilated.—In the only two cases in which the caustic was applied to varices of both saphenæ, it was observed, that whilst the internal saphena was obliterated, the external saphena acquired an increase in size, and that varices previously but little apparent, became more voluminous, so as to substitute a new disease for that which had been cured. Advanced age, and the thickness of the coats of veins, such as renders their approximation difficult, even with the pressure of the finger, are likewise circumstances unfavourable to the use of caustic potass.

The treatment of varices by caustic potass hastens the cicatrization of ulcers which co-exist with them.—This may in part be explained, by the revulsion caused by the numerous artificial ulcers, and by the cure of the varices.

In what cases should cure of varicose veins be attempted?

1. Whenever varices ulcerate, and give rise to hemorrhage.
2. When varices exist with ulcers so extensive as to require rest of six weeks, two months, or upwards.

Setting aside these complications, I think we should attempt to diminish the swelling by a stocking. If there are no ulcerations, or if these are but little extensive, if they may get well in one or two weeks, it is unnecessary to keep the patient in bed for above a month; this time is necessary for the separation of the eschars formed by caustic potass, and for the cessation of the pain which remains for some time afterwards in the deep ulcerations. In this case, the remedy would indeed be worse than the disease. M. Bonnet concludes the above highly interesting and useful memoir, by an eulogium on the superiority of the treatment therein recommended over every other, and by a prediction that it will gain the credit which it deserves.—*B. & F. Med. Rev.* from *Archives Générales*, May and June, 1839.

27. *Rigidity of the Lower Jaw—Operation—Cure.*—We find in the *Compte rendu des travaux de la Société Royale de Médecine de Toulouse*, by the Secretary-General, M. Ducasse, the following interesting case. A soldier, ætat. 29, was affected with scurvy, and languished for several months in the hospitals of Africa. He was afterwards sent to France, where his health was completely re-established; but there remained a permanent rigidity of his jaw, so that he could not separate them more than half an inch without intolerable pain. Hence there was great difficulty in mastication and in speaking. After a protracted and fruitless treatment, this patient was admitted into the Hôtel Dieu-Saint-Jacques of Toulouse on the 15th of March, 1838, a year after the commencement of this affection.

M. Dieulafoy, after a careful examination, concluded, that the immobility arose from a permanent contraction of the right masseter muscle; the patient experiencing pain in this part when it was pressed upon, and also when efforts were made to separate the jaws. The left side was unaffected. M. D. believing that the accident might be remedied by a division of the muscle, determined to perform such an operation.

He accordingly made a vertical incision through the skin three or four lines long about the middle of the muscle. Through this he then passed a narrow bladed and strong bistoury which was alternately moved from before, backwards and then in the opposite direction, so as to divide the masseter. Immediately after the operation, the rigidity of the jaw was in part relieved, and the patient could open and shut his jaws much better than previously. In a few days the external wound cicatrised, but the motion of the jaw was still limited. It was then found that there existed a band, which extended from the superior to the inferior alveolar processes behind the last molar, and that the anterior fibres of the pterygoid muscle were contracted. These were divided, and the patient was relieved; he could perform with facility all the usual movements of the jaw, and, in a short time, left the hospital cured.—*Journ. de Méd. et de Chirurg. Prat.* Aug. 1839.

28. *Post Mortem Appearances in* Prof. Salomon's *Patient, whose Primitive Iliac Artery had been tied.*—Our Number for August, 1838, contains an account of a case in which Prof. Salomon, of St. Petersburg, had succesfully applied a ligature to the primitive iliac artery, near the bifurcation of the aorta, for an aneurism of the external iliac artery. The cure was deemed perfect; the tumour almost entirely disappeared, and the free use of the limb was restored. After remaining well for ten months, the patient exposed himself to the cold in the open air during a stormy night, with but little clothing on. Rheumatic inflammation of the psoas muscle was brought on, and, though treated by the most energetic antiphlogistic means suppuration could not be prevented. An abscess formed, and was opened three weeks from the beginning of the symptoms, just below Poupart's ligament. He died shortly after, worn out by the suppuration.

Before examining the body, the abdominal aorta was injected. Inspection